Current Conditions Biota Sampling 2019

CPG-EPA Meeting

May 28, 2019

623569

Agenda Topics

- Data Quality Objectives
- Statistical evaluation
  - Discussion of power analysis
- Sampling level of effort

Biota Sampling Data Quality Objectives

- **EPA DQO 1** – Collect sufficient biota data prior to performing the interim remedy so that a statistical comparison to post interim remedy data, both short-term and long-term monitoring data, can be made (to the extent practicable) for each chemical of concern to determine changes in fish and crab tissue concentrations in the reach~~es~~ from RM 8.3 – 1~~65~~ ~~and RM 15 - Dundee Dam~~ after the interim remedy is performed.
- **CPG DQO 2** – Evaluate FWM performance using the Current Condition fish and crab tissue data and refine model as needed post ROD.

CPG revisions are indicated in red and strike-out

Data Quality Objective Notes

- CPG's sample size and power calculations are in general agreement with sample sizes proposed for EPA by John Kern
- Sample sizes proposed for RM 15 to 17.4 by EPA's DQO are unlikely to be met for some target species based on river conditions and 2009/10 collection records
- CPG's collection effort will be implemented to the extent practicable to collect sufficient composite samples for target species in RM 8.3 to RM 16 (i.e., boat-accessible areas).
- What are the specific questions and decisions that are being addressed by EPA's version of DQO 1?

Power Evaluation – White Perch Example

Kern/EPA result

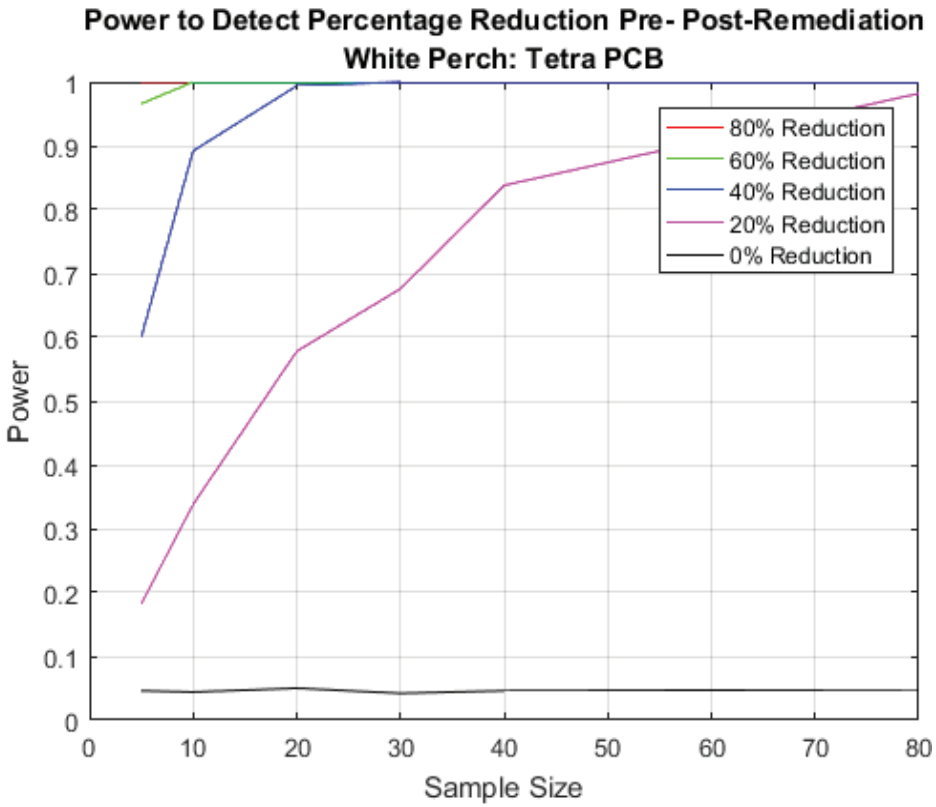
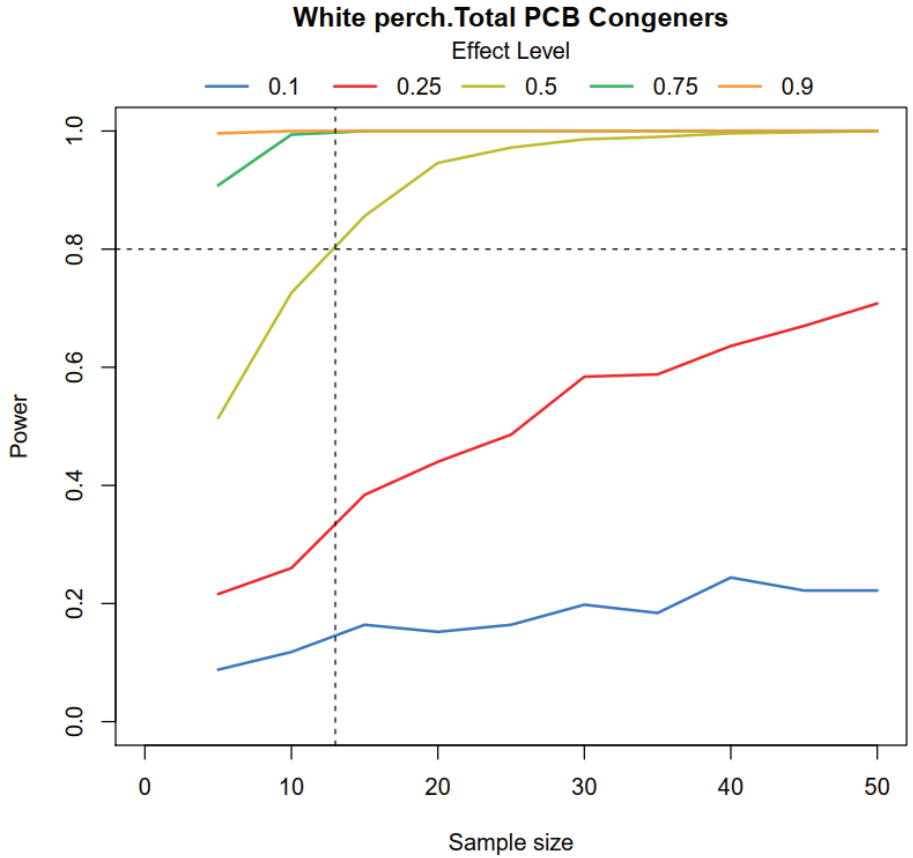


Figure is based on tetra-homolog only

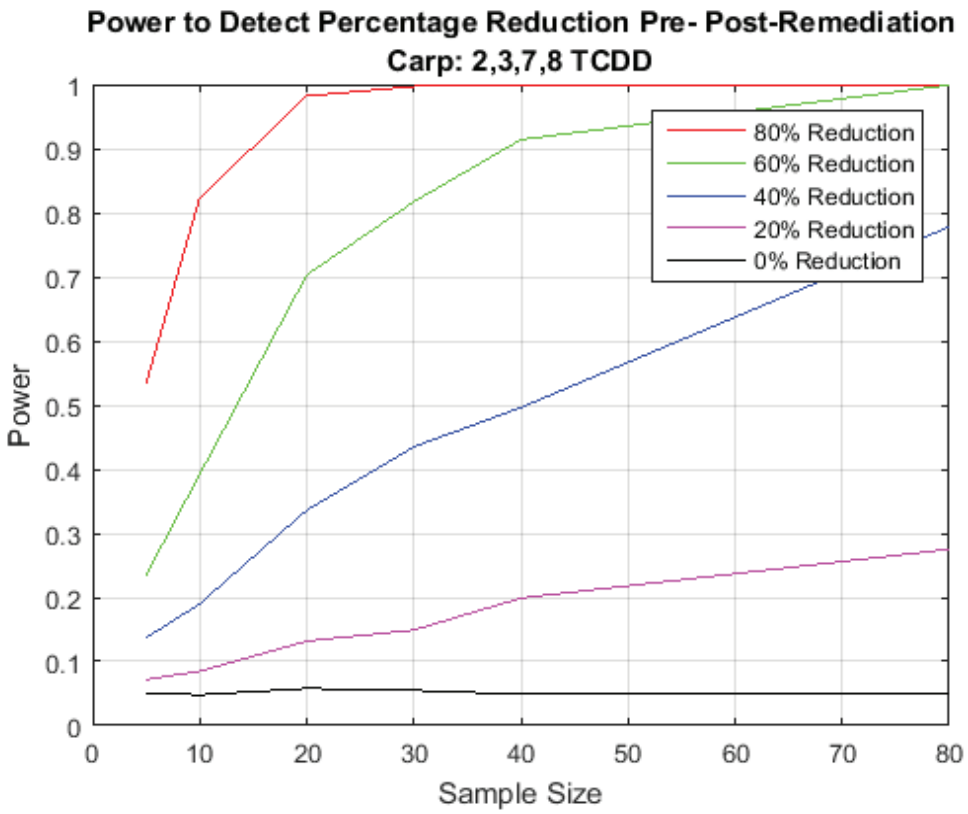
Windward result



Dash lines show n=13 samples and 80% power

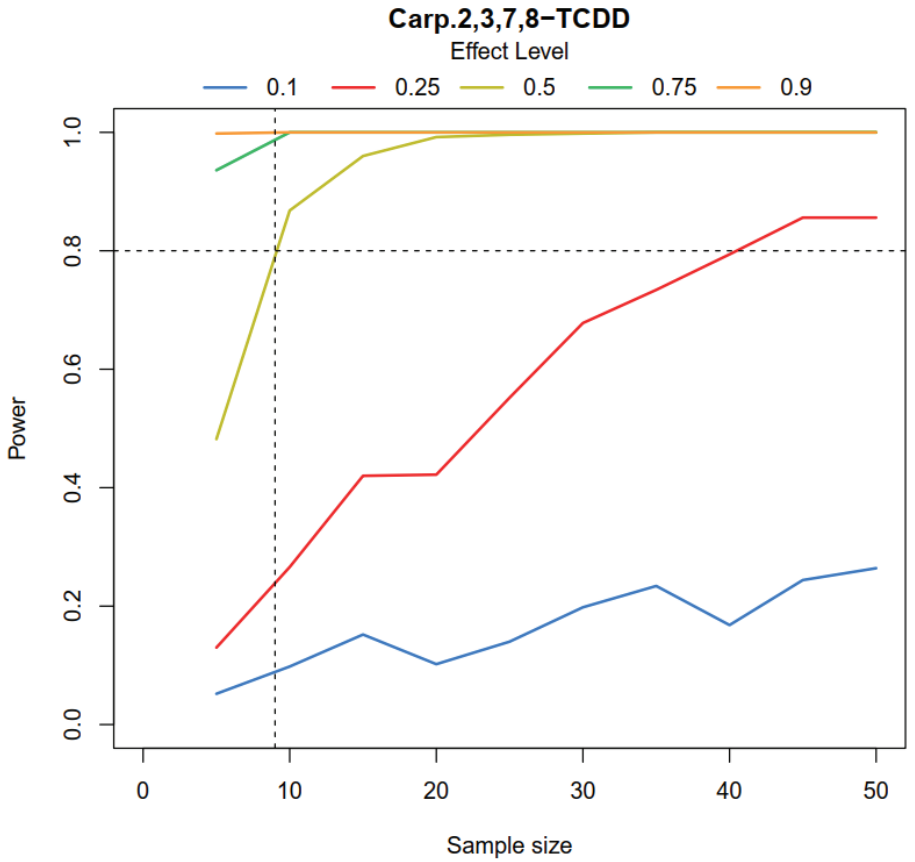
Power Evaluation – Carp Example

Kern/EPA result



Both figures are based on carp composites (3 fish)

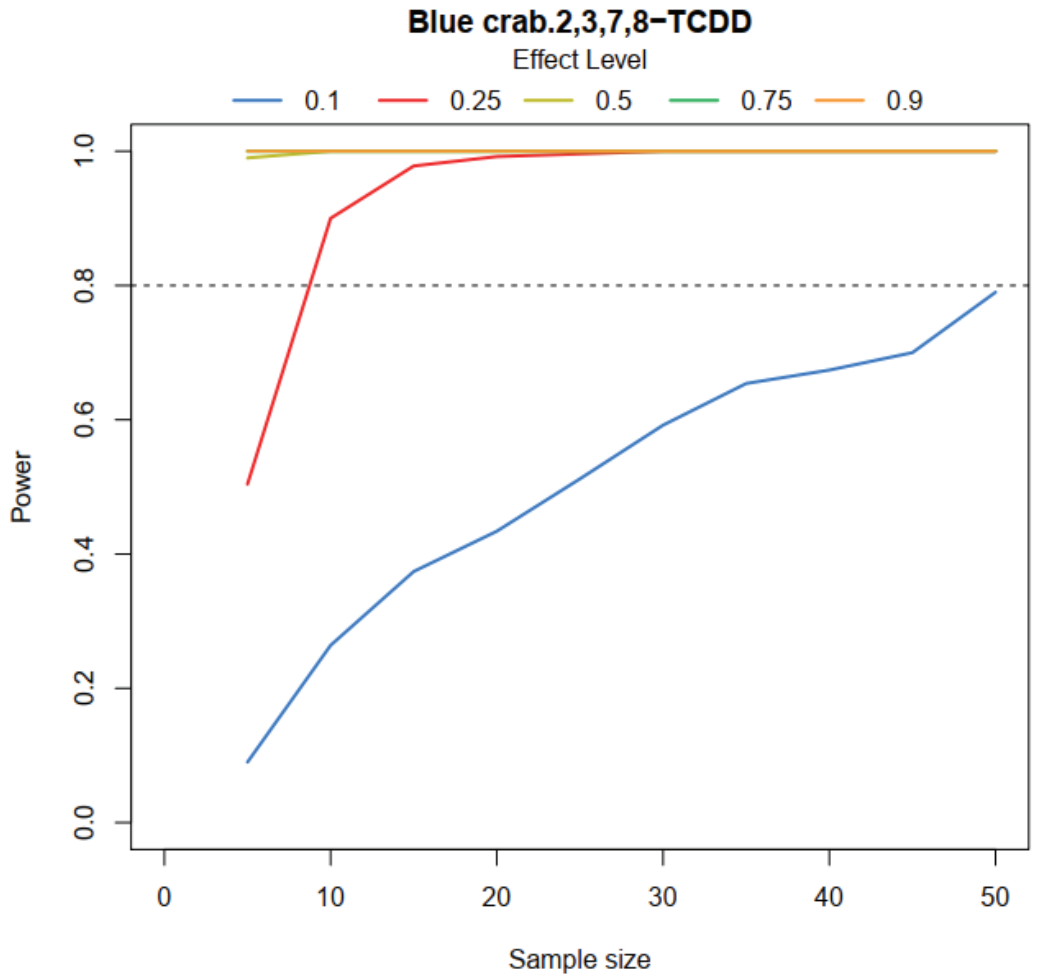
Windward result



Dash lines show n=9 samples and 80% power

Power Evaluation – Blue Crab Example

Windward result



Kern/EPA didn't evaluate blue crab data; < 5 samples needed for 80% power (at 50% effect)

CPG Power Evaluation – Results of Non-parametric Power Analysis

Species	Approximate Sample Size (80% Power/95% Confidence/50% Effect)	
	2,3,7,8-TCDD	Total PCBs
American eel	13	< 5
Bass	9	< 5
Blue crab	< 5	< 5
Carp	9	< 5
Catfish	9	8
Small forage fish	8	< 5
White perch	14	13

Level of Effort

- Similar to 2009/2010 and 2012 efforts (crew covered 4 river miles per week)
- Plan for 2019 (RM 8.3 to RM 16):
  - Boat-accessible up to about RM 16; anticipate limited access to area above RM 16.
  - Three-week schedule:
    - Week 1 – RM 8.3 to RM 12
    - Week 2 – RM 12 to RM 16
    - Week 3 – additional sampling as needed (RM 8.3 to 16)

Level of Effort – RM 8.3 to RM 16

Gear Type	No. Per One-River Mile	Notes
Crab traps	1 set of 3	Each deployed for 5 overnight soaks over the course of 1 week (i.e., deploy Monday, retrieve for 5th time on Saturday).
Eel traps	1 set of 3	
Minnow traps	1 set of 3	
Trotlines	1 set of 3	
Gillnet	1 net	
Electrofishing	na	Locations depend on suitable habitat, accessibility
Beach seine	na	Locations depend on suitable habitat, presence of shallow wadeable areas where safe to seine.